

401 KAR 59:212. New graphic arts facilities using rotogravure and flexography.

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division for Air Quality

RELATES TO: KRS 224.20-100, 224.20-110, 224.20-120; Appendix A to 40 CFR 60 (Method 24); 42 USC 7401 et. seq.; 42 USC 7407; 7408; 7410

STATUTORY AUTHORITY: KRS 224.10-100, 42 USC 7410

NECESSITY AND FUNCTION: KRS 224.10-100 requires the Natural Resources and Environmental Protection Cabinet to prescribe regulations for the prevention, abatement and control of air pollution. 42 USC 7410 likewise requires the state to implement standards for national primary and secondary ambient air quality. This regulation provides for the control of volatile organic compound emissions from new graphic arts facilities which use rotogravure and flexography.

Section 1. Definitions. As used in this regulation, all terms not defined in this section shall have the meaning given to them in 401 KAR 59:001.

(1) "Affected facility" means a printing line for packaging rotogravure, specialty rotogravure, and flexographic printing.

(2) "Applicator" means the mechanism or device used to apply the ink.

(3) "Flashoff area" means the space between the applicator and the oven.

(4) "Printing line" means a series of equipment or operations used to apply, dry, or cure any inks containing volatile organic compounds (VOCs). This shall include, but is not limited to:

(a) Mixing operations;

(b) Process storage;

(c) Applicators;

(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;

(e) Clean up operations;

(f) Leaks, spills and disposal of VOCs;

(g) Processing and handling of recovered VOCs;

(h) For the purposes of determining compliance with this regulation, if any equipment or operation is considered to be a part of more than one (1) printing line, its VOC emissions shall be assigned to each printing line of which it is a part proportionally to the throughput of VOCs it receives from or distributes to each printing line;

(i) If any portion of the series of equipment or operations qualify for an exemption according to Section 6 of this regulation, then that portion shall be considered to be a separate printing line;

(j) All units in a machine which has both coating and printing units shall be considered as performing a printing operation.

(5) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain inks, VOCs, or recovered VOCs; but does not mean storage tanks of petroleum liquids which are subject to 401 KAR 59:050, 401 KAR 59:052, or 401 KAR 61:050.

(6) "Printing" means the formation of words, designs and pictures, usually by a series of application rolls each with only partial coverage. It applies to flexographic and rotogravure processes as applied to specialty, and packaging printing.

(7) "Coating" means the application of a uniform layer of material across the entire width of a web.

(8) "Classification date" means February 4, 1981.

(9) "VOCs net input" means the total amount of VOCs input to the affected facility minus the amount of VOCs that are not emitted into the atmosphere. VOCs that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the

purpose of determining VOCs net input. When the nature of any operation or design of equipment permits more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emissions shall apply.

(10) "Packaging rotogravure printing" means rotogravure printing upon paper, paper board, metal foil, plastic film, and other substrates, which are, in subsequent operations, formed into packaging products and labels for articles to be sold.

(11) "Publication rotogravure printing" means rotogravure printing upon paper which is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements, and other types of printed materials.

(12) "Flexographic printing" means the application of words, designs and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of rubber or other elastomeric materials.

(13) "Rotogravure printing" means the application of words, designs, and pictures to a substrate by means of a roll printing technique which involves intaglio or recessed image areas in the form of cells.

(14) "Roll printing" means the application of words, designs and pictures to a substrate usually by means of a series of hard rubber or steel rolls each with only partial coverage.

(15) "Specialty rotogravure printing" means all rotogravure printing except packaging rotogravure and publication rotogravure printing. It includes, but is not limited to, rotogravure printing on paper cups and plates, patterned gift wrap [giftwrap], wallpaper and floor coverings.

Section 2. Applicability. (1) This regulation shall apply to:

(a) Each affected facility commenced on or after the classification date defined in Section 1 of this regulation and located in a county or portion of a county designated as nonattainment for ozone in 401 KAR 51:010, for any classification except marginal; and

(b) Each affected facility commenced on or after the effective date of this regulation which is part of a major source located in a county or portion of a county designated attainment or marginal nonattainment for ozone in 401 KAR 51:010.

(2) Each affected facility commenced on or after the classification date defined in Section 1 of this regulation but prior to the effective date of this regulation which is part of a major source located in a county or portion of a county designated attainment or marginally nonattainment for ozone in 401 KAR 51:010 shall be exempt from this regulation except that control devices and procedures required at the time it commenced shall continue to be operated and maintained.

Section 3. Standard for VOCs. (1) No person shall cause, allow, or permit an affected facility for packaging rotogravure printing or specialty rotogravure printing to discharge into the atmosphere more than thirty-five (35) percent by weight of the VOCs net input into the affected facility.

(2) No person shall cause, allow, or permit an affected facility for flexographic printing to discharge into the atmosphere more than forty (40) percent by weight of the VOCs net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system shall be subject to approval by the cabinet.

(2) Compliance with the standard in Section 3 of this regulation shall be demonstrated by a material balance unless the cabinet determines that a material balance is not possible. If a material balance is not possible, compliance shall be determined based upon an engineering analysis by the cabinet of the control system design, control device efficiency, control system capture efficiency, and any other factors that may influence the performance of the system. If requested by the cabinet, performance tests specified by the cabinet shall be conducted to determine the efficiency of the

control device. Capture efficiency shall be determined by procedures specified in 401 KAR 50:047 in all ozone nonattainment areas except marginal.

(3) With the prior approval of the cabinet, the owner or operator may elect to effect all changes necessary to qualify for an exemption under Section 6 of this regulation.

(4) If deemed necessary by the cabinet, the cabinet shall obtain samples of the inks used at an affected facility to verify that the inks meet the requirements in Section 6 of this regulation. Appendix A to 40 CFR 60, Method 24A, which has been incorporated by reference in 401 KAR 50:015, shall be used as applicable to determine compliance of the inks unless the cabinet determines that other methods would be more appropriate. Case-by-case alternatives approved by the cabinet, but not previously authorized by the U.S. EPA, shall be submitted to the U.S. EPA as a SIP revision.

(5) The amount of exempt solvents shall be subtracted from the amount of inks, just like water, with the ultimate value of interest being the mass of VOC per unit volume of ink less exempt solvent or water or both.

(6) Daily records shall be maintained by the source for the most recent two (2) year period. These records shall be made available to the cabinet or the U.S. EPA upon request. These records shall include, not be limited to, the following:

- (a) Applicable regulation number;
- (b) Application method and substrate type;
- (c) Amount and type of graphic arts material or solvent used at each point of application, including exempt compounds;
- (d) The VOC content as applied in each graphic arts material or solvent;
- (e) The date for each application for graphic arts material or solvent;
- (f) The amount of surface preparation, clean-up, or wash-up solvent (including exempt compounds) used and the VOC content of each; and
- (g) Oven temperature, if applicable.

Section 5. Compliance Timetable. (1) Affected facilities which were subject to this regulation as in effect on February 4, 1981, shall have achieved final compliance upon startup.

(2) The owner or operator of an affected facility that, on or after the effective date of this regulation, becomes subject to this regulation for any reason other than construction, modification, or reconstruction shall be required to complete the following:

(a) A final control plan for achieving compliance with this regulation shall be submitted no later than nine (9) months after the date the affected facility becomes subject to this regulation.

(b) The control system contract or the exempt coatings and any accompanying process change contracts shall be awarded no later than eleven (11) months after the date the affected facility becomes subject to this regulation.

(c) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be initiated no later than thirteen (13) months after the date the affected facility becomes subject to this regulation.

(d) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than seventeen (17) months after the date the affected facility becomes subject to this regulation.

(e) Final compliance shall be achieved no later than eighteen (18) months after the date the affected facility becomes subject to this regulation.

(f) If an affected facility becomes subject to this regulation because it is located in a county previously designated nonurban nonattainment or redesignated in 401 KAR 51:010 after November 15, 1990, final compliance may be extended to May 31, 1995, and the schedule in paragraphs (a) through (d) of this subsection adjusted by the cabinet.

Section 6. Exemptions. Any affected facility shall be exempt from Section 3 of this regulation if the printing systems:

(1) Utilize a water-borne ink whose volatile portion consists of seventy-five (75) volume percent water and twenty-five (25) volume percent organic solvent (or a lower VOC content) in all printing units;

(2) Achieve a seventy (70) volume percent overall reduction of solvent usage (compared to all solvent-borne ink usage);

(3) Utilize inks which, excluding water, contain sixty (60) percent or more by volume non-volatile material as applied to the substrate; or

(4) Utilize inks with an emission limit of 0.5 lb VOC/lb solids as delivered to the applicator.

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